



Association for
Computing Machinery

Advancing Computing as a Science & Profession

NEWS RELEASE

CONTACT: Jim Ormond
212-626-0505
ormond@hq.acm.org

WORLD'S LEADING COMPUTER SCIENCE EDUCATION SYMPOSIUM LOOKS TO THE FUTURE

50th Annual Symposium Brings Together More than 1,500 Researchers, Educators and Others Dedicated to Enhanced Computing Competency and Accessibility

New York, NY, February 13, 2019 – The ACM Special Interest Group on Computer Science Education (SIGCSE) will hold its 50th annual [SIGCSE Technical Symposium](#) in Minneapolis, MN, from February 27 to March 2, 2019. SIGCSE is the largest computing education conference in the world, and will attract more than 1,500 researchers, educators, practitioners, and others interested in improving computing education in grades K-12, two-year colleges, and higher education settings.

The SIGCSE program is designed to reflect the most pressing issues and exciting innovations in the field. Some of the presentations tackle practical considerations faced by educators, such as how to effectively assess student work in the face of increasingly large class sizes. Other presentations address how to meet the challenge of student demand for courses in emerging areas such as artificial intelligence and cybersecurity. Symposium Program Co-Chairs Sarah Heckman, of North Carolina State University, and Jian Zhang, of Texas Woman's University, along with a team of track chairs and reviewers created a program that showcases research demonstrating the efficacy of educational interventions, experience reports from practitioners, and model curricula for emerging areas like data science.

“Our 2019 program reflects both the significance of a 50th Symposium, as well the growing centrality of computer science at all levels of education,” explains Symposium General Co-Chair Elizabeth K. Hawthorne, of Union County College, New Jersey. “Those exploring the 2019 program will see that we have continued our tradition of presenting leading-edge research from around the world on improved and scalable pedagogies. At the same time, there are ample offerings that address the hottest trends in the field—such as data science and cybersecurity.”

Added Symposium General Co-Chair Manuel A. Pérez-Quñones, of University of North Carolina at Charlotte, “The 2019 program also reflects the SIGCSE community's interest in broadening participation in computing,” he said. “This includes several presentations on attracting and retaining more representation from women and other underrepresented groups—as well as innovative approaches to make computing accessible for people with disabilities.”

SIGCSE 2019 HIGHLIGHTS

Keynotes

“Pursuing the Dream: A 50-Year Perspective on American Society, Technology, and Inclusion in Computing”

Freeman A. Hrabowski, III, University of Maryland, Baltimore County

In this talk, Hrabowski, President, University of Maryland, Baltimore County, will explore the ways in which rapid and dramatic demographic and technological changes—and the interplay of technology, education, and inclusion over the past 50 years—should shape the future of work in higher education. Emphasizing themes from his TED talk on student success, he focuses on the importance of high expectations and hard work, building community among students, faculty engagement with students, and rigorous assessment of what works.

“A Top-Ten List for 50-50”

Gloria Townsend, DePauw University

Townsend, Chair of DePauw University’s Computer Science Department, will discuss how her university has leveraged lessons learned from SIGCSE—as well as best practices imparted by the ACM Council on Women in Computing—to achieve the goal of awarding 47 percent of its computer science undergraduate degrees to women. Townsend will provide a rapid-fire countdown of 10 of the university’s most effective strategies. Concurrent with her keynote address, Townsend will receive the 2019 SIGCSE Award for Lifetime Service to the Computer Science Education Community.

“Computing Education as a Foundation for 21st Century Literacy”

Mark Guzdial, University of Michigan

In this talk, Guzdial lays out the history of the idea of universal computational literacy, with the goal of teaching programming as a way to express ideas, communicate with others, and understand our world—and what it will take to get there. He will also discuss how the field will be different when it is realized. Guzdial will be recognized with the SIGCSE Award for Outstanding Contribution to CS Education.

“Cybersecurity Is Not a Fad: Why Cyber Is a Game Changer for Computer Science Education”

Blair Taylor, Towson University

First, the bad news: cybersecurity is here to stay. Now, the good news: cybersecurity is here to stay. We continue to need skilled cyber workers. Students like cyber. Cyber can draw more students to Computer Science and create opportunities for Computer Science faculty. In this talk, Taylor will share her experiences building cyber curriculum from the classroom perspective and from her experience working with the National Security Agency to build a National Cybersecurity Curriculum Program.

Papers and Presentations (Partial List)

The full SIGCSE 2019 program is available [here](#).

“CS Education Then and Now: Recollections and Reflections”

Melinda McDaniel, Georgia Institute of Technology; John Cigas, Park University;

Briana B. Morrison, University of Nebraska, Omaha; Henry M. Walker, Grinnell College

How has CS education changed since SIGCSE first began in 1968? This panel of presenters, with 135 years of teaching instruction between them, will remind some attendees of what used to be and educate newer members on what life was like pre-internet.

"Community College Transfer Pathways"

Jeffrey Forbes, Duke University; Jume Song, Siegel Family Endowment; Louise Ann Lyon, Education, Training, and Research; Leslie Maxwell, California State University, Monterey Bay; Cindy S. Tucker, Bluegrass Community and Technical College

This panel will provide an overview of the computing workforce landscape, discuss the role of community colleges to increase the diversity of students in computer science, and share case studies that highlight promising practices for the inclusion of community colleges in the CS educational pathway.

"Wrestling with Retention in the CS Major: Report from the ACM Retention Committee"

Alison Derbenwick Miller, Oracle; Christine Alvarado, University of California, San Diego; Mehran Sahami, Stanford University; Elsa Villa, University of Texas at El Paso; Stuart Zweben, The Ohio State University

This panel focuses on the challenges of collecting and analyzing data relating to retention of students in undergraduate computer science education programs. The panelists will share learnings and recommendations from the final report of the ACM Retention Committee and share their individual perspectives on data collection challenges, promising interventions, and recommendations for actively addressing retention for all students.

"Where Are We Now? Results from a National Study of Computer Science Teachers and Teaching"

Eric R. Banilower, Evelyn M. Gordon, Horizon Research, Inc.

This session will engage participants with results from the National Survey of Science and Mathematics Education (NSSME+) related to computer science education in the US, including: how many, and which, students have access to computer science instruction; who teaches computer science and what pre-service preparation and in-service professional development they have; the nature of computer science instruction; and access to resources, including instructional materials, to support instruction.

"Teaching Professional Morality & Ethics to Undergraduate Computer Science Students through Cognitive Apprenticeships & Case Studies: Experiences in CS-HU 130 'Foundational Values'"

Don Winiecki, Noah Salzman, Boise State University

This experience report describes and details experience in guiding undergraduate computer science students to identify and address issues related to inclusion, diversity and social justice as they occur in computer science education and computer science professions.

"Computer Science Principles for Teachers of Blind and Visually Impaired Students"

Andreas Stefik, University of Nevada, Las Vegas; Richard E. Ladner, University of Washington; William Allee, University of Nevada, Las Vegas; and Sean Mealin, North Carolina State University

Best Paper for Experience Reports and Tools: The authors discuss their efforts to expand and facilitate accessibility to computer science education for blind and visually impaired students. Their efforts to develop a multi-sensory educational infrastructure for the blind community across the US has produced two preliminary results: a suite of auditory and programming tools to facilitate a multi-sensory curriculum, and an empirical study of their first summer workshop with blind students—with encouraging results.

"First Things First: Providing Metacognitive Scaffolding for Interpreting Problem Prompts"

James Prather, Raymond Pettit, Alani Peters, Zachary Albrecht, Krista Masci, Abilene Christian University; Brett A. Becker, University College Dublin; Paul Denny, The University of Auckland; Dastyni Loksa, University of Washington

Best Paper for Research Contribution: Developing metacognitive awareness is crucially important for novice students. We explore a scalable approach, making use of an automated assessment tool, and conduct a controlled experiment to see whether scaffolding the problem-solving process would increase metacognitive awareness and improve student performance. We found that students who received the intervention showed a higher degree of understanding of the problem prompt and were more likely to complete the programming task successfully.

“);DROP TABLE textbooks;--: An Argument for SQL Injection Coverage in Database Textbooks”

Cynthia Taylor, Oberlin College; Saheel Sakharkar, University of Illinois at Chicago

Best Paper for Curriculum Initiatives: SQL injection is a common database exploit which takes advantage of programs that incorrectly incorporate user input into SQL statements. Teaching students how to write parameterized SQL statements is key to preventing this wide-spread attack. We look at the current editions of seven textbooks used at the top 50 US CS programs, and analyze their coverage of SQL injection, use of parameterized queries, and correctness of examples.

About the SIGCSE Technical Symposium

The [SIGCSE Technical Symposium](#) is SIGCSE's flagship conference. It has been held annually in February or March in the United States since 1970. We look forward to our 50th SIGCSE Symposium in 2019, where we expect over 1500 to attend. The symposium provides a diverse selection of technical sessions and opportunities for learning and interaction.

About SIGCSE

The [Special Interest Group on Computer Science Education](#) of the Association for Computing Machinery (ACM SIGCSE) is a community of approximately 2,600 people who, in addition to their specialization within computing, have a strong interest in quality computing education. SIGCSE provides a forum for educators to discuss the problems concerned with the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabi, laboratories, and other elements of teaching and pedagogy.

About ACM

ACM, the Association for Computing Machinery (www.acm.org), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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